Ontario Energy Board

Staff Discussion Paper

Rate Classification for Electricity Distribution Customers

EB-2007-0031

January 29, 2009

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1 Introduction

1.1 Rate Design Project Update

This paper outlines Board Staff's proposal for province-wide changes to rate classification. Rate Design for the Recovery of Electricity Distribution Costs (EB-2007-0031, the "Project")[1] is intended to culminate in the Board issuing a policy framework for electricity distribution rate classifications and rate design. To date, Staff research and consultation on both rate classification and rate design have been combined. A Staff Discussion Paper[2] (the "2008 Discussion Paper"), including a number of proposals for rate classification and rate design changes, was issued in June 2008 and 14 comments were received.

Subsequent to that consultation, it became apparent to Staff that there is a need for further study on a number of the rate design issues. Rate design requires that the Board consider developments in metering, increased distributed generation and an increased role for distributors in conservation and demand management. These initiatives continue to evolve and are a challenge for implementation in distribution systems.

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[1] http://www.oeb.gov.on.ca/OEB/Industry+Relations/OEB+Key+Initiatives/Rate+Design+for+Electricity+Distributors

[2] http://www.oeb.gov.on.ca/OEB/_Documents/EB-2007-0031/rate_design_staff_discussionpaper_revised_20080606.pdf The paper released in March was revised in June for corrections to the modeling tables. There were no changes to the conclusions of the paper.

Staff also recognizes that the furtherance of the Board's policy on cost allocation (Application of Cost Allocation for Electricity Distributors[3]) requires long-term consistency as to defined rate classifications. Otherwise customers could be subjected to billing instability due to changes in rate classifications following on adjustments to revenue-to-cost ratios. This instability is contrary to the principles of good rate making.

Therefore in Staff's view, it is necessary to deal first with the issue of rate classification. It is also important to recognize that any changes to rate classification need sufficient lead time to allow distributors to make the necessary changes to their systems and to prepare consumers. For these reasons, Staff proposed to the Board that it separate the creation of a policy on rate classification from all other matters of rate design. A consultation on the more limited issue of rate classification was held on September 4, 2008.

It is the intention of Staff to continue work on the remaining rate design issues in the spring and summer of 2009.

1.2 The Purpose of this Paper

The purpose of this Staff Discussion Paper is to present the Staff recommendation on rate classifications and to solicit stakeholder comment. This is intended to be the last staff-led consultation on this aspect of the Project before it is turned over to the Board for determination of a policy on rate classification. The Board may hold further consultation on this subject at its discretion. Staff has made a recommendation for rate classifications in Section 5.

[3] http://www.oeb.gov.on.ca/documents/cases/EB-2007-0667/Report_Cost_Allocation_Review_20071128.pdf

1.3 The Structure of this paper

Section 1 described the objective of the Project and the purpose of this paper. Section 2 contains a brief overview of the Project so far. Section 3 is a review of the basic principles of rate classification, Staff's proposal for classifications in the 2008 Discussion Paper and a summary of some of the stakeholder comments in response. Section 4 is a discussion of the roles of voltage, demand and capacity in system planning, setting of rates and static and dynamic efficiency of the distribution system. Section 5 is Staff's proposal for new rate classifications as informed by stakeholder comments and some of the issues that must be taken into consideration if the proposed rate classifications are implemented. Section 6 discusses some issues for cost allocation resulting from the proposed classifications. Finally, Section 7 identifies the next steps to develop a Board policy on rate classifications.

2 The Project to Review Rate Design

The traditional stages of rate-making are: the regulator establishes the revenue requirement of the utility either through determining the cost of service or setting the output of a performance-based plan; customer classes are established to group 'like' customers with like costs; costs are allocated according to those customer classes; and finally rates are designed to collect charges from those rate classes in a way to recover the revenue requirement.

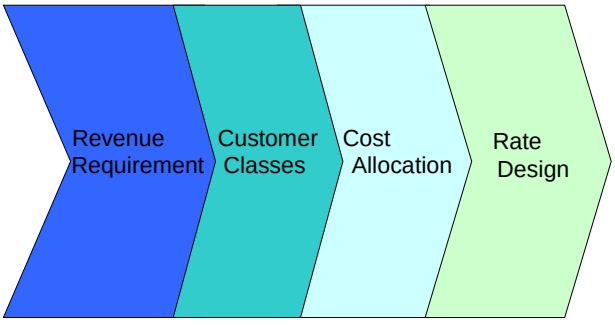

Figure 1: Stages of Ratemaking

The principle of fairness in rate design can be expressed as the drive to reduce cross-subsidization. Traditionally, rate classes are set to try to ensure that inter-class fairness is achieved by grouping customers so that like customers can be treated in a like manner. Inter-class cross subsidization is addressed by reducing the revenue to cost ratio for each class to unity as closely as possible. Rate design is used to try to achieve intra-class fairness; that customers are paying their fair share of the class revenue based on their contribution to peak requirements.

The development of rate classifications and rate design are not separate issues but are iterative processes. If rates cannot be set to achieve intra-class fairness then classes may have to be adjusted either through new classes or creation of sub-classes. As the Project proceeds, it will be important to be mindful of the implications on fairness issues of future rate design which is still under examination.

Phase 1

On March 30, 2007, the Board posted a Board Staff Discussion Paper[4] (the "2007 Discussion Paper") to solicit comments from interested stakeholders about the following areas:

- Underlying principles of rate design;
- Classes of service; and
- Rate design components and issues.

The Discussion Paper attempted to establish a common nomenclature for, and a discussion of some key rate design concepts. The Board received nineteen submissions in response to the 2007 Discussion Paper. As a result of the stakeholder comments, the Board decided that the focus of the Project would be the following areas: potential new rate classifications; proportion of fixed to variable rates; and appropriate

[4] http://www.oeb.gov.on.ca/documents/cases/EB-2007-0031/staff-paper_ratedesign_20070330.pdf

billing determinants. The Board also decided to add the recovery of the cost of system losses to the scope of the project.

Phase 2

Board Staff held a series of group and individual consultation meetings from October 2007 to January 2008. Meeting materials from those sessions are available on the Board's website[5].

Staff released the 2008 Discussion Paper that described various rate design options with invitations to comment on specific areas. The Board received fourteen comments[6] on the 2008 Discussion Paper. This paper has incorporated those comments where relevant to rate classification. Comments received on rate design issues will be addressed when work proceeds on that part of the Project.

3 Initial Rate Classification Proposal

3.1 Background

The objective of classification is to achieve fairness by grouping customers with similar cost causation and similar cost levels. This allows cost allocations to be as objective as possible (i.e. relying less on judgement and assumptions) and ensures that like customers are being treated in a like manner.

As Staff noted in the 2008 Discussion Paper, customers should be grouped into classes such that:

- The per-customer costs for customers within a class are similar enough for them to be subject to a standardized per-customer charge;

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5 http://www.oeb.gov.on.ca/OEB/Industry+Relations/OEB+Key+Initiatives/Rate+Design+for+Electricity+Distributors

- The per kW (or kVA) costs for customers within a class are similar enough for them to be subject to a standardized demand or capacity charge; and
- The kWh costs for customers within a class are similar enough for them to be subject to a standardized energy charge.

Staff and stakeholders have identified the following factors that give rise to cost differences that may be significant enough to justify the creation of separate classes.

- Differences in customer costs related to:
    - Supply voltage;
    - Service connection;
    - Metering; and
    - Customer service.
- Differences in demand or capacity costs related to:
    - Power quality both in voltage or harmonic control and firmness of supply.

In consultations, stakeholders noted that distributors do not maintain different standards for power quality based on class. Therefore they suggested that customer-driven differences in power quality should be priced as provided, including when on-going reactive power problems caused by one customer affect asset investments required to protect power quality to other customers.

Traditionally, load profiles were used to group classes in an integrated utility (i.e. with bundled rates). Since peak contribution was more important for allocation of transmission and generation, these issues have less meaning in the context of a wires only distribution company. In comments, the Green Energy Coalition ("GEC") listed some distribution costs that vary with energy use but most of the examples[7] concern

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[6] Stakeholder comments referenced in this paper refer to those filed in regard to the 2008 Discussion Paper unless otherwise noted. Full text of the comments is available on the Board's web-site as previously noted.

[7] E.g. The effect on insulation life from the number and extent of overloads; thermal limits on overhead lines; recovery from load spikes; and line losses.

"energy use in high-load hours" which is the equivalent primarily to system peak demand. In any case these costs are minor compared to the relationship of energy use to the cost of the commodity.

It is important to carry forward from the history of regulation of integrated utilities what is relevant to the issue of classification in light of the separation of the delivery function from the consumption of commodity. The approach taken is "a blank slate" where the objective is to create rate classes and rates appropriate to the restructured electricity industry.

3.2 Staff's Initial Proposal for Connection Voltage Based Classifications

The 2008 Discussion Paper suggested rate classifications based on connection voltage:

- sub-transmission (3-wire system at 44 kV, 27.6 kV, or 13, 8 kV);
- primary (4-wire system at 2400V to 27.6/16 kV);
- secondary 3-phase (< 750V); and
- secondary 1-phase (< 750V).

In commenting on the proposal, many stakeholders agreed that connection voltage is reflective of distribution assets used by a customer and therefore cost. However as discussed below there were other objections regarding the fairness of the proposal.

The Association of Major Power Consumers in Ontario ("AMPCO"), among others, pointed out that connection voltage is often a historical "accident of location" rather than due to customer choice. The Coalition of Large Distributors ("CLD") stated, "[t]he problem with reclassifying by voltage is that similar customers with the same demand levels, but served by one system versus another, would pay different rates and this would be perceived as unfair if the customer could not choose the system supply arrangement."

Some stakeholders suggested that there may not be a cost difference between secondary 3-phase and secondary 1-phase. In fact, they argued that 1-phase service many be more costly because of the requirement for balancing lines.

The London Property Management Association ("LMPA") questioned whether a distinction between primary and secondary systems is appropriate. Hydro One Networks Inc. ("Hydro One") also suggested that distinctions based on voltage are somewhat arbitrary since, for different distributors, the same level of transformation[8] would result in different voltages. Hydro One argued that level of transformation was the best link to cost causality.

LPMA argued that boundary issues will always exist with discrete classes. To address this concern, it suggested the investigation of a continuous function based on volume usage. This would appear to be suggesting a single class.

In addition, stakeholders noted several implementation issues. Hydro One noted that a significant effort would be required to implement such a connection voltage classification approach as this would entail 'connectivity' information in the Customer Service System, so each individual customer account could be classified correctly and billed appropriately.

Several stakeholders expressed support for the existing, familiar, demand-based rate classes. Some stakeholders suggested that, if more classes were needed to reflect finer gradations of cost causality, the current range of customers with over 50 kW of demand but less than 5000 kW of demand could be further divided. The Electricity Distributors' Association ("EDA") stated that differences in metering costs, customer

[8] For example, for a distribution system that takes a primary voltage of 44 kV and steps it down to 27.6 kV to 8 kV to 2400 V, a customer at 2400 V will have 3 levels of transformation. For a distribution system that distributes at 27.6 kV for primary and steps down to 8 and 2400 V, a customer at the same voltage has had only two levels of transformation at considerably less cost. However, the distributor may have valid reasons for using the higher voltage for primary distribution.

services, typical service connection and other costs vary according to size of the customer. "Differences in distribution costs also vary with size as larger customers typically use distribution facilities at higher voltages. A classification on size based on peak demand informs customers that their peak demand is important as it determines their classification and costs."

Customers with fluctuating demand can inadvertently cross a threshold of rate classes. In practice this is rare because of the size of the class, i.e. because there are so few class boundaries. However the number of customers near the 50 kW boundary does make it a problem.

4 The Roles of Voltage, Demand and Capacity

Conservation discussions often start by pointing out that customers are seldom interested in buying electricity rather, they are interested in lights, heat and running their processes. Similarly in this discussion, customers are not interested in selecting their voltage but the ability to run their processes by having sufficient power to do so. The distributor ensures that the customer has that capacity to draw power requirements through a combination of voltage and current. The voltage of supply is the business decision of the distributor.

The comments of stakeholders have led Staff to consider the various functions of voltage, demand and capacity in the distribution system. One compelling argument was that strictly defining class according to voltage, while representing distribution system assets, does not reflect the power requirements of the customer. The result could be that like customers are treated differently.

In its comments to the 2008 Discussion Paper, AMPCO stated that the most important determinant of classification should be the customer's use of distribution assets, both in terms of what assets are required to serve the customer and the pattern of demand the customer places on those assets. However, Staff suggests that except for residential and streetlighting, few rate classes show the kind of homogeneity to which AMPCO

refers. On the other hand, connection capacity reflects the implicit contract capacity which stakeholders identified as desirable but administratively difficult to bring to lower voltage customers.

AMPCO and others made the point that demand is the best proxy for determining how assets should be allocated to customers, since demand is the principal driver of system design. Figure 2 represents the current, realized demand approach to rate classifications. The aggregate realized demand of customers, adjusted for diversity and fluctuating usage based on historical use and distributor experience, establishes the need for assets to serve customers. The cost of that infrastructure is allocated by class (Residential, General Service under 50 kW of demand, General Service over 50 kW of demand, Intermediate and Large Customer Classes) and divided by the non-coincident peaks of the customers to determine variable rates.

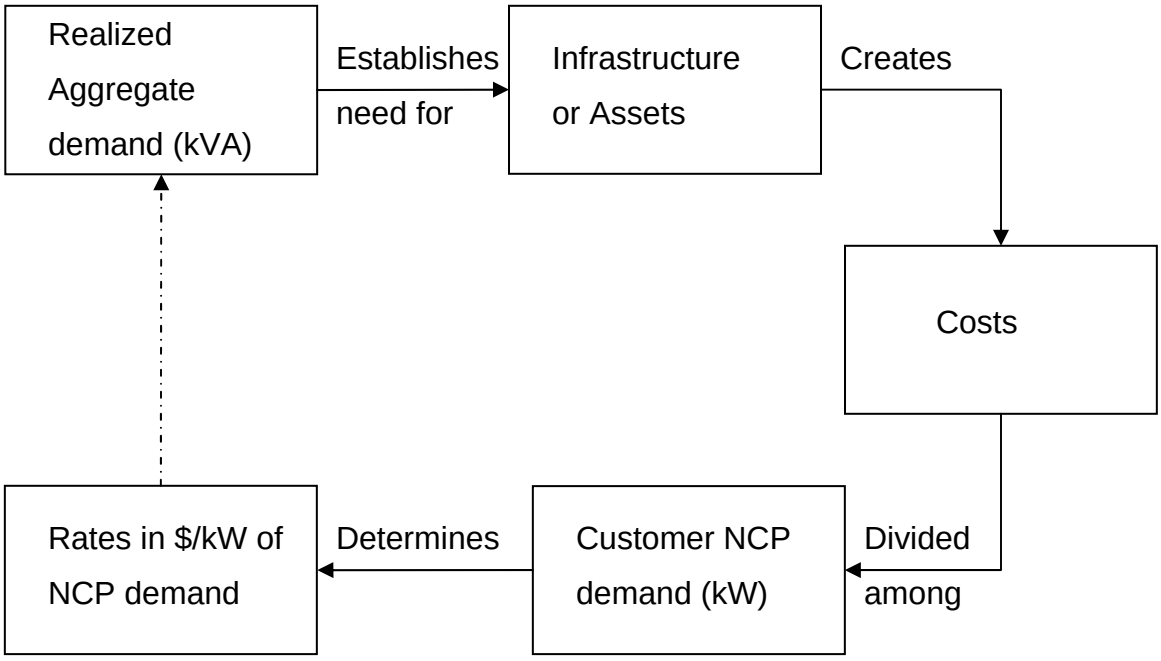

Figure 2: Realized Demand Approach to Rate Classifications

In this model there is a weak feedback loop to the aggregate demand. The effect on bills of the variable rate will tend to cause customers to reduce peak whenever possible. However, as distributors have noted in consultations, the use of non-coincident peak as the billing determinant results in monthly use that is fairly consistent over the course of a year since at some point a customer will reach their maximum use.

Like rate design, rate classifications should be made with a mind to induce behavioural change. A voltage-based classification where the connection decisions are largely outside of the customer's control does not achieve that. Staff believes it is possible to design a class structure that will produce a better outcome. The underlying rate classes should support the expected policy objective of conservation and demand management. The principle of system efficiency can be encouraged through a thoughtful approach to rate classification as well as rate design. Rate classifications should be able to induce behavioural change by signaling the importance of early decisions on connection capacity and customer demand.

In its 2008 Discussion Paper, Staff stated that apparent demand (in kilovolt amps or kVA) was a more appropriate indication of the assets required to serve a customer than real demand in kW. There was general agreement from stakeholders on this issue. Staff now also suggests that the customer connection capacity more closely reflects the cost causality for the design of the system than the customer's fluctuating demand. Using connection capacity as the classification criterion more strongly closes the loop between rates and aggregate demand in a way that rates based on fluctuating demand can not.

System planning would proceed as before. The aggregated peak demand would establish the need for infrastructure, just as described in Figure 2. The distributor would use the cost of demand (i.e. the cost of investment in assets created by the need to accommodate system demand) and allocate the costs to classes on a unitized connection capacity basis. When these costs are charged back to customers, the customer would make decisions to reduce capacity and/or contain demand. As

customers adapt to the charge methodology, it would influence behaviour and future demand and therefore directly affect the amount to be invested in new assets.

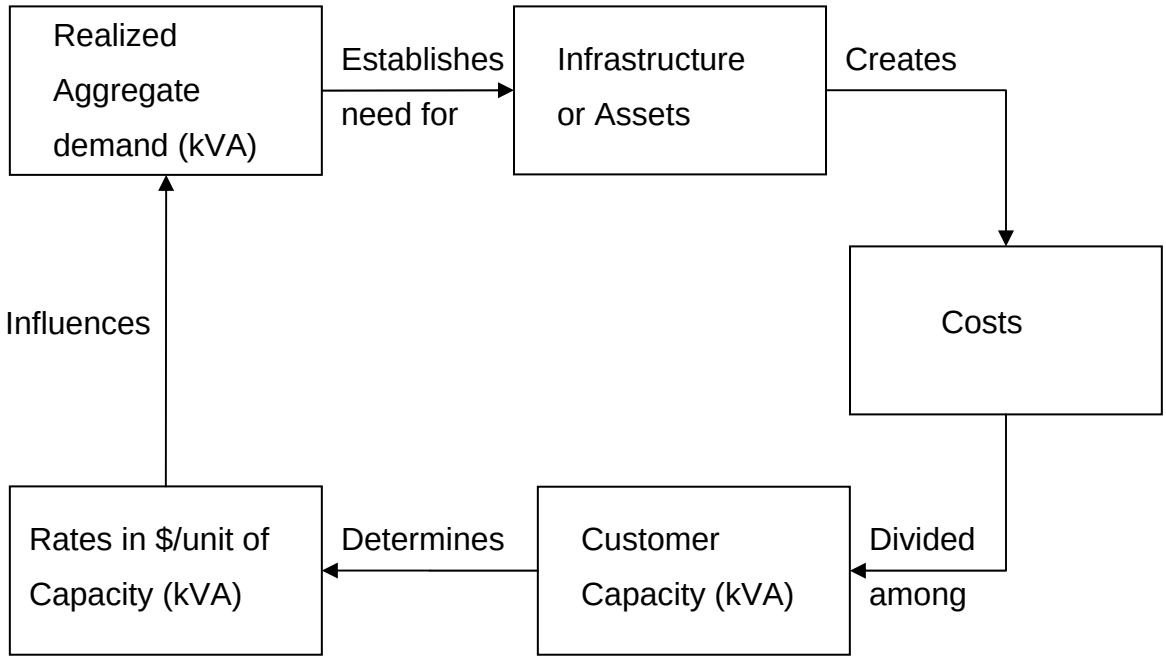

Figure 3: Capacity Approach to Classifications

Staff believes that the current allocation principles can be applied without undue changes. The voltage level allocations to these new classes may be able to be weighted in much that same way that the costs of the secondary system are allocated now. The association of capacity classes with associated voltages will need to be determined. The benefits of this classification proposal should not be affected by the cost allocation process.

There are three arguments in favour of connection capacity-based classifications: 1) it reduces customer bills; 2) it improves system efficiency; and 3) it is fairer.

Classifications based on connection capacity will provide a benefit to customers by providing a conservation incentive to the customer. Customers would have an incentive to “right size” their connection. This is because a connection in excess of actual (or

expected) demand would create an ongoing and unavoidable “classification” cost. A customer deciding on new equipment or new processes would need to consider the effect that it would have on power use, class and electricity bills. Efficient equipment would have a quantifiable payback beyond the avoided commodity costs. This is the customer benefit in terms of reduced bills.

Having classifications based on connection capacity is expected to increase both static and dynamic efficiency of the system. This is the system benefit in terms of efficiency of the system.

Efficiency is achieved through customers pursuing their own reduced bills. Under a capacity-based classification model, electricity customers would be expected to try to flatten load curves by shifting increasing demand into off-peak hours in order to avoid the additional on-going costs associated with a higher cost capacity class. In turn, this leads to fewer over-capacity connections and fewer under-utilized distribution assets. Over time, the installed capacity and the design demand should converge as customers size their connections to their actual load. Although the two measurements are never expected to be equal because of diversity and safety margins, the outcome is a trend to improved static efficiency of the distribution system (efficiency of the current system).

In turn long-run distribution costs would decline as unrealistic or unrealized capacity demand was eliminated from system design. The accumulation of customer decisions to minimize charges and maximize efficiency would affect rational growth of the system. The system planner would need to accommodate lower aggregated realized demand than what would otherwise have developed. In this way, customer choices close the loop back to system planning and provide forward-looking dynamic efficiency to the distribution system.

Under the current rate classification regime, overcapacity is charged to all customers within a class. Under the proposed classifications, the costs are born by the individual customers who have oversized connections. This is a fairer outcome.

The Federation of Ontario Cottagers' Association Inc. ("FOCA") commented that in the consultation sessions there was little support for rates based on service entrance capacity because it failed to track distribution costs on several fronts. FOCA argued that if all or a portion of distributor's customers reduced their service entrance capacity, but kept their demand and energy use unchanged, distribution costs would not change yet revenue would decline significantly. Staff notes that this is also true of current rate classes: if all or a portion of a distributor's customers reduced their monthly peak usage, distribution costs would not change, yet revenue would decline significantly. Staff suggests that this is more a function of the rate design recovering fixed costs through variable charges than a problem of rate classification.

5 Capacity-based Rate Classifications

Subsequent to its proposal for a connection voltage-based classification, Staff met with a group of stakeholders representing distributors and consumers in September of 2008. The proposal outlined below was informed by that discussion. Staff is now seeking comment on the "Capacity- based Rate Classification" proposal.

5.1 The Proposal

Staff proposes that a customer's rate classification be based on that customer's capacity to draw power, represented by a combination of voltage and current (kVA). Staff further proposes that classifications should be divided at capacity levels that represent the investment in assets: voltage; meter type and complexity; transformers; etc. The proposed capacity levels are to be based on the requirements of the Distribution System Code[9] (the "DSC") and previous comments from stakeholders. These comments are outlined below.

[9] http://www.oeb.gov.on.ca/OEB/_Documents/Regulatory/Distribution_System_Code.pdf

Since kVA is a better indication of costs than kW alone, Staff suggest that classes be defined according to kVA wherever metering permits.

Table 1: Proposed New Rate Classifications

Rate Classifications			
From	**To**	**Units**	**Sample customer**
-	49	kW	Residential; or corner store; or many single-phase farms
50	249	kW	400 amp/3-phase home; 20 unit multi-res; commercial garage; dairy farm or greenhouse
250	499	kW	Supermarket
500	999	kVA	Big box store; or small machine shop
1000	2999	kVA	Big box grocery store (i.e. with refrigeration); or 30 floor condominium (600 units)
3000	4999	kVA	Auto parts manufacturer; or large office tower
5000	And above	kVA	Large office/retail complex; hospital; university; or large manufacturer

5.2 Stakeholder Comments Regarding Class Boundaries

The CLD stated that rate classes ought to be determined based on commonality of costs and that assets used to serve customers represent only one such cost factor. “Differences in load patterns are other cost factors that have a bearing on the extent of use of those assets. Customer service costs (number of phone calls, collection costs, write-offs, etc.) are still other costs factors”. This agrees with Staff’s definition of the principles of rate classification outlined in section 3.1 above. Currently, Staff has no information on the differences in cost attributable to the new proposed classes to include in modelling or to suggest different thresholds than those proposed. Staff expects that cost allocation studies would differentiate these cost factors according to the new classifications.

FOCA points out that residential service, in particular, is vastly oversized for average demand. The proposed rate classifications would provide little differentiation between residential customers i.e. houses with service at less than 400 amps and 400 amps/120V be in the under 50 kW class and; 400 amps/240V would be in the over 50 kW class. However, other rate design approaches may help drive conservation in the residential class.

Staff has suggested a division at 250 kW. However, many distributors in their Conditions of Service set the requirement for interval meters at 200 kW. Stakeholders may wish to comment on whether this would be a more appropriate threshold.

Hydro One suggested that an appropriate level for a class threshold is 500 kW which matches the DSC requirement for interval metering at the 500 kW level for new customers. Staff has included a boundary at this level.

EDA recommends a large customer threshold at 1000 kW. Staff notes this coincides with the DSC requirement for interval meters on all existing customers. Staff has included a boundary at this level.

AMPCO noted that it is generally accepted good engineering practice that customers with demand above 3,000 kW should only be served by lines that are sourced at the transmission system. Staff has included a boundary at this level.

Staff proposes maintaining the existing Large Customer class for connections over 5000 kVA.

5.3 Customer Movement Between Classifications

Without an allocation exercise to attribute costs to the new, more finely differentiated classes, modelling does not provide any information on potential rate impacts, if we assume that the underlying rate structure would remain unchanged. What we can illustrate is the mapping of customers from the existing rate classifications to the

proposed classifications. Table 2 shows the mapping for many of the customers of Milton Hydro. The customer totals include the residential customers for whom hourly data was available. These customers are shown as mapping into the appropriate capacity class.

	Realized load-based classifications				
Capacity-based Classifications	**Residential**	**GS<50 kW**	**GS>50 kW**	**GS>1000kW**	**GS>5000kW**
0 – 49 kW	1745	44	2		
50 – 249 kW	6	353	83		
250 – 499 kW		7	49		
500 – 999 kW			46		
1000 – 2999 kW			24	5	
3000 – 4999 kW				2	
> 5000 kW				2	2

Table 2: Mapping Customers to the Proposed Classifications

The greatest migration is the number of customers currently classified as under 50 kW who would be re-classified as over 50 kW. The rate impacts on these customers can not be determined until rate design proposals are tabled. As noted already however, under the new regime customers would no longer inadvertently cross the threshold based on fluctuating use.

It is interesting to note the number of connections that are oversized compared to ongoing requirements. Over 90% of the customers who have demand less than 50 kW each month have service connections that are greater than that. Further, 12% of customers currently classified as having demand less than 1000 kW have connections greater than 1000 kW.

Staff agrees with stakeholders who commented that the results of modelling based on data from one distributor are not determinative. Results will be better when hourly data from all of the priority smart-metering distributors are available. The initial results of the

modelling directed by Staff are only meant to be illustrative. Consequently, over analysis of the results is also counter-productive. Staff continues to try to make modelling results as useful as possible by obtaining hourly data from Chatham-Kent Hydro and Newmarket Hydro but that data is not yet available for modelling.

5.4 Other classes

The need for additional classes, as always, is based on a group of customers having significantly different costs than the class that would otherwise apply. Staff's proposal on the remainder of the classes is primarily drawn from ideas that arose in the various consultation meetings in late 2007 and early 2008.

Streetlighting and Sentinel Lights

Staff proposes combining Streetlighting and Sentinel Lights into a single class. The load profile of night-time use, assets used and cost drivers are essentially the same.

Unmetered Scattered Load

Staff agrees with Canadian Manufacturers and Exporters ("CME") which suggests that a better name is Unmetered Multi-point Load ("UML").

Rogers Cable Communications Inc. ("Rogers") commented primarily on the USL rate class. Rogers uses the principles reported in the previous Staff Discussion Paper to make the argument that USL should remain a distinct class. Specifically, that "[p]ursuant to the basic rate classification principles outlined in the 2008 Discussion Paper and highlighted above, a robust approach to ensuring recovery of appropriate (no more and no less) customer costs from USL customers would entail establishing a separate rate class for USL customers." Staff agrees that the difference in load profile between the clearly defined unmetered load (Streetlighting and Sentinel lighting) and the rest of the unmetered load continues to justify a separate rate class.

Embedded Distributors

Staff proposes that embedded distributors be treated as customers of similar size. Both distributors and customer groups suggested in consultation that there is essentially no difference in demand drivers. It is not clear that the differences in customer-related costs (e.g. customer service, collection and bad debts) is sufficiently different from other large customers for a separate class.

Density Classes

SEC suggests that there be classes based on density to avoid urban customers subsidizing rural customers. Specifically, SEC believes that most schools are in urban locations. Further, SEC states that distributors who have general service classes that include both urban and rural areas will have higher fees for schools since the urban customers will be subsidizing the rural customers. SEC states that to do otherwise is an unacceptable foray of the Board into social economic policy. Hydro One also suggests classes based on length of distribution feeders especially for rural distributors.

Board Staff does not agree with this argument insofar as regulators frequently socialize costs across a rate class. Locational costs vary with other factors besides density, yet the Board and stakeholders have generally rejected locational rates or locational classes. Staff suggests that the principles of acceptability, lack of controversy and ease of understanding are important considerations in this discussion.

5.5 Implementation Considerations

The *Ontario Energy Board Act, 1998* and the *Electricity Act, 1998* and their regulations refer to residential-rate class customers and to customers with demand under 50 kW for eligibility for certain programs[10]. Therefore the Board must maintain a distinct residential-rate class and a threshold at 50 kW of demand. However depending on

[10] E.g. Ontario Regulation 445/07: Reclassifying Certain Classes of Customers as Residential-Rate Class Customers: Section 78 of the Act made under the Ontario Energy Board Act or Ontario Regulation 442/01: Rural or Remote Electricity Rate Protection made under the Ontario Energy Board Act.

Board policy and individual rate cases, the residential class might have the same rate as the equivalent small general service class.

The arguments in section 4 about static and dynamic efficiency hold true primarily when addressing new or changing connections for owner-occupied premises. Some customers have little choice as to the actual service connection in relation to their power needs e.g. rental premises or speculative buildings. Therefore under the proposed rate classifications, the conservation inducement may be stronger for new connections than existing ones. However, it is possible for customers taking over an existing service to de-rate at the service entrance if necessary to better match their requirements to their service capacity. The investment in de-rating the service could be offset through the avoidance of the higher ongoing service cost of the original service capacity. It will be important for implementation to define the point of customer control (e.g. at the panel) so that the class that the customer belongs to is customer driven, yet the distributor keeps control of the system investment decisions.

For the conservation effect described to happen and avoid unintended consequences, charges must increase as the capacity class increases. The increased number of classes should reduce but may not eliminate boundary issues since costs should be more finely allocated. In addition, the issue would arise less often since customers would not move between classes from month to month based on fluctuating usage. A change in class would only be possible through a physical change at the point of electrical connection.

Some distributors may not have the information on connected capacity. Although some may have metering records that capture the service capacity information, others may need to develop appropriate transitional proxies for this information. Comments on this implementation difficulty will be welcomed. Capacity information on new connections, be they due to new construction or service upgrades should be readily available through the distributor's involvement in those processes.

The Board would have to deal with any Code amendments that may arise from the proposal, if and when they materialize.

The Board would need to make a policy decision as to whether the new classifications are universal or to be implemented on a selective basis among distributors. Staff suggests that universality is desirable as many customers have locations in several different distribution service areas and consistent treatment is important.

6 Implications for Cost Allocation

A previous Report of the Board: Application of Cost Allocation for Electricity Distributors[11] found that some actions (particularly on the revenue to cost bands applicable for the various rate classes) should wait on the Board's overall policy on rate classifications arising from the rate design project. The Report noted concerns regarding the quality of the data and factors influencing it. One was the heterogeneity of customers within the current rate classes, particularly GS > 50 kW. The proposal for rate classifications has some implications regarding that allocation work.

As mentioned in Section 2, rate classification, cost allocation and rate design are related processes. Good cost allocation is an important factor for good rate design. Specifically, the costs for customer related facilities and services need to be analyzed to find points of differentiation to help guide the establishing of class boundaries. Similarly any other distribution cost necessary for providing service to a specific class should be identified separately for allocating to the class, such as facilities to ensure power quality for the customer(s) in the class. Once reasonable class boundaries are determined, these cost differences should be incorporated into the cost allocation to ensure that the resulting rates are as closely related to cost as possible.

[11] http://www.oeb.gov.on.ca/documents/cases/EB-2007-0667/Report_Cost_Allocation_Review_20071128.pdf

Issues arising from capacity allocations need to be addressed. If individual *capacity* is an allocator, or total *connected capacity* of a proposed class is an allocator, studies would probably be needed in all cases. Would such studies result in a cost allocation of significantly greater accuracy? Would such an allocator better reflect the system design, which is the real driving factor for the costs?

The functionalization of distribution costs by voltage will need to be revisited. Therefore, distributors will need to analyze their records to develop costs and allocators that reflect the differences in services. The current cost model may need to be modified to take into account these new cost differentials. If the necessary details are not in the accounting records, special studies to estimate the differences in the costs will need to be undertaken. In other words, after the Board makes its policy decision, a new cost allocation study can be undertaken with new rate classifications with the intent of narrowing the bands in the GS over 50. For this, some distributors may have to capture additional information about customer connections.

The definitions of residential; streetlighting; unmetered multi-point load; and large customers are likely to remain fairly consistent.

7 Next Steps for Rate Classifications

Staff will review and provide to the Board all stakeholder comments on the proposal in this paper.

Staff has recommended to the Board that it create a policy covering the establishment of rate classes for all distributors. The next step in this process will be a final recommendation by Staff to the Board regarding that policy. That recommendation will depend on the comments to this proposal from interested stakeholders.

The Board will determine whether to issue a policy and whether it wishes to hear further from stakeholders.